

REMARKS

Claim 1 has been amended to recite that the cutting oil coater contains "means forming an oil spray by actively mixing said oil and a gas under pressure," as supported by gas tube 3a, and oil tube 3b in Figures 1 and 2, and gas source 7 in Figure 1 as described on page 5, line 35 to page 6, line 10 of the specification. Claim 1 has also been amended to recite the presence of "a return passage for allowing the oil inside the spray feed portion to return to the oil storage portion and designed to receive continuously substantially all of the oil which separates from the spray before the spray is ejected onto the cutting tool", as supported by element 10 in Figures 1 and 2, described in the specification from page 8, line 34 to page 9, line 1. Note that in Figures 1 and 2, substantially all the oil from the spray generated in spray discharge pipe 3 which is not discharged from spray conveying passage 4, drains back into container 2 and is conveyed through return passage 10 to oil tank 9.

Claims 4 and 5 have been amended to recite that the inlet of the return passage is an orifice or has a diameter portion which is narrower than the inner diameter of the return passage, as shown by elements 10 and 10a of Figure 2 and described on page 8, line 1 to page 9 line 7 of the specification.

Reconsideration of this application, as amended is respectfully requested.

The objection to the Information Disclosure Statement on page 2 of the Office Action is believed to be overcome by the "Resubmission of Information Disclosure Statement" filed on January 8, 2004.

The objection to the specification has been overcome by the foregoing amendment.

The rejection of claims 4 and 5 under 35 U.S.C. 112, second paragraph as indefinite in not defining the recited "narrower portion", is believed to be overcome by the amendment of these claims to recite that the, diameter of the inlet of the return passage is narrower than the inner diameter of the return passage. This is clearly shown by elements 10a (the inlet) and 10 (the return passage) of Figure 2 of the drawings.

Claims 1-3 and 7 have been rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2,653,517 (erroneously cited in the Office Action as 2,635,517) of Pigott, which teaches the application to a cutting tool of a high speed jet of cutting liquid, such liquid being fed through flexible tubing from a

lathe sump which appears from Fig 1 of the patent to be separate from the area of the cutting tool. Also disclosed is a by-pass pipe leading from the flexible tubing back to the lathe sump for the purpose of relieving excess pressure on the cutting liquid being fed to the high speed jet, and returning excess liquid to sump. However, contrary to the language employed for the rejection, there is no indication that a spray of cutting oil is ever employed by Pigott. In fact, the word "spray" is apparently never used in the language of Pigott. Rather, the word "jet" is consistently used by Pigott to describe the stream of cutting oil used in the described method and, as is well known, a jet of liquid such as cutting oil is merely a swift continuous stream of such liquid rather than a mass of droplets indicated by "spray". In any case, there is certainly no disclosure by Pigott of the active formation of a true oil spray by mixing the oil with a gas, a limitation which is now present in all of the rejected claims. Therefore, the rejection of claims under 35 U.S.C. 102(b) as anticipated by Pigott is not warranted and should be withdrawn.

Claims 1 and 7 have been rejected under 35 U.S.C. 102(b) (should be 102(e)) as anticipated by, or in the alternative, under 35 U.S.C. 103(a), as obvious over U.S. Patent No. 6,287,056 (Arai et al.), which discloses a cutting tool supplied with a cutting oil mist formed by mixing the oil from an oil source with a large amount of air from an air source in a mist generating device. The mist

flows through a hose to the vicinity of the cutting tool. However, there is no description or suggestion in the disclosure of Arai et al. of a return passage for allowing oil which separates from the mist before it is fed to the cutting area, i.e. the "spray feed portion" in applicants' claims, to be returned to the source of the cutting oil, i.e., the "oil storage portion" in applicants' claims, as was inserted into claim 1 by this amendment. It is noted that claim 2, now canceled, which recited such a return passage, was not included among the claims rejected on Arai et al. It is submitted therefore that the rejection based on Arai et al. of claim 1, which now includes the return passage limitation, should be withdrawn for the same reason that claim 2 was not included among the claims previously rejected on Arai et al.

Claims 1-4, 6 and 7 have been rejected under 35 U.S.C. 102(b) (should be 102(e)) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 6,230,843 (Geiss) which discloses an apparatus comprising a first chamber 11 which produces an oil mist by receiving a small quantity of oil and a large quantity of air, the mist flowing under pressure through a supply line into chamber 11 through a vaporizing nozzle having a plurality of outlet orifices or channels. The mist then flows through a connection at the bottom of chamber 11 into a second chamber 12, with the particles which are too heavy for such

transport or which adhere to the walls of chamber 11 flowing through a recollection line back to the oil supply chamber. The mist containing the lightest particles flow upwardly through chamber 12 and then downwardly through an outlet line located in chamber 12 to the vicinity of the tool to be lubricated.

A disadvantage of this apparatus is that the particles in chamber 12 which are too heavy to be transported to the outlet line or which adhere to the walls of the chamber, collect as liquid at the bottom of chamber 12 and can only be withdrawn through the connection between chamber 11 and 12 for movement back to the oil supply chamber; see col. 3, lines 16-21. However, this can only be done when the system is shut down in view of the direction of flow of the mist from chamber 11 to chamber 12 during normal operations, which interferes with the efficiency of the operation. However, claim 1 as amended and its dependent claims now include a feature not present or suggested in the disclosure of Geiss as previously described, namely that the return passage is designed to receive continuously substantially all of the oil which separates from the spray before the spray is ejected onto the cutting, as supported in the figures of the drawing of the present application.

Furthermore, there is nothing which would lead one having ordinary skill in the art to modify the apparatus of Geiss so that it includes this feature. Therefore, this rejection is not well supported and should be withdrawn.

Claim 5 has been rejected under 35 U.S.C. 103(a) as being unpatentable over Geiss, on the ground that it would be obvious to design the return passage with a cross-sectional area in the claimed range. It is submitted, however that this rejection on Geiss has been overcome by the amendment of claim 1 for the same reason as the rejection of the other claims on this reference.

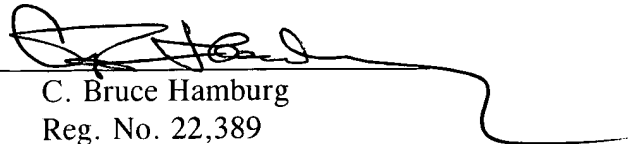
Applicant respectfully requests that a timely Notice of Allowance be issued on this application.

Applicant respectfully requests a three month extension of time for responding to the Office Action. Please charge the fee of \$950 for the extension of time to Deposit Account No. 10-1250.

Respectfully submitted,

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